Possible Impacts for Park Bats with Mixed Use Development of Whetstone Springs Parcel

Rickard S. Toomey, III, Ph.D.[*]

Mixed use commercial development of the Whetstone Springs parcel has the potential to negatively impact the bats of Kartchner Caverns State Park, as well as other, protected, species of bats which inhabit the vicinity of the Caverns. The Whetstone Springs parcel is located in the southeast quarter and the south half of the southeast quarter of the northeast quarter of Section 24 T18S R19E, immediately adjacent to Kartchner Caverns on its northwest boundary.

Several species of bat found at Kartchner Caverns State Park are vulnerable to potential impacts of development in the area of the park. These include two nectar-feeding bats (the lesser long-nosed bat and the Mexican long-tongued bat) and the insectivorous cave myotis. Both of the nectar-feeding species have been afforded protected status.[1] All three of these species are found in the park. The cave myotis and the Mexican long-tongued bat are known to roost in caves on the park.[2]

Both of the nectar-feeding bats depend greatly on agave plants as a food source (in particular on *Agave palmeri* in the area of the park).[3] Development of the intensity that

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[*] Rickard S. Toomey, III, is the Cave Resources Manager for Arizona State Parks. He has a B.S. in Geological Sciences from Brown University (1985) and a Ph.D. in Geological Sciences from The University of Texas at Austin (1993). His dissertation is entitled *Late Pleistocene and Holocene Faunal and Environmental Changes at Hall's Cave, Kerr County, Texas.* From 1994 to early 2001, he served at the Illinois State Museum as a post-doctorate fellow, a technology and education specialist, and Assistant Curator of Geology. He has worked extensively on cave paleontology, including an on-going study of the paleontology of caves at Mammoth Cave National Park. The research at Mammoth Cave has included reconstructing cave environments and restoring habitat for endangered bats. Dr. Toomey has served on the Illinois Department of Natural Resources' Karst Working Group developing management policies and protection strategies for caves and karst. He has been President of the Illinois Speleological Survey and is on the board of the Cave Research Foundation, administering its fellowship and grant program. In April 2001 he became Arizona State Parks' Cave Resources Manager.

[1] The scientific names of these species are as follows: lesser long-nosed bat – *Leptonycteris curasoae*; Mexican long-tongued bat – *Choeronycteris mexicana*; and the cave myotis – *Myotis velifer*. The lesser long-nosed bat is listed as endangered on the Federal endangered species list. The Mexican long-tongued bat is listed by Arizona Game and Fish Department as a species of special concern.

[2] Buecher and Sidner (1999) provide good information on bats that have been found at the park. Kartchner Caverns houses a maternity colony of cave myotis that numbers about 1000 females. The Mexican long-tongued bat has been observed roosting in the entrance area of Kartchner Caverns and in another cave on the park.

[3] USFWS (1995) discusses the diet of the lesser long-nosed bat and threats to its survival. Under proposed recover actions, the recovery plan (p. 28) notes, concerning the need to protect foraging areas and food plants, that "Populations of these plants need continued protection to sustain nectar-feeding bat

has been discussed for the parcel that has been proposed for rezoning could significantly reduce the density of agave plants in that area. Reduction in the density of agave in the area around the park could negatively affect the nectar-feeding bats that inhabit the park.[4]

The threat to the cave myotis is very different. The potential problem in the case of the cave myotis is predation from feral cats. Currently, feral cats are not much of a problem at the park. However, they are known to have had a significant negative impact on bat roosts elsewhere.[5] Increased development makes it more likely that feral cats (or pet but outdoor cats) will have a negative impact on the cave myotis maternity colony at Kartchner Caverns.

Intense development adjacent to Kartchner Caverns State Park is likely to have a negative impact on several species of bats that occur in the park.

References Cited

Barbour RW and Davis WH, 1969, Bats of America, Lexington, KY: University Press of Kentucky. 286pp.

Buecher DC and Sidner RM, 1999, Bats of Kartchner Caverns State Park, Arizona. *Journal of Cave and Karst Studies*. **61(2)**: 102-107.

U.S. Fish and Wildlife Service, 1995, Lesser Long-nosed Bat Recovery Plan. Albuquerque, NM: U.S. Fish and Wildlife Service. 45pp.

U.S. Fish and Wildlife Service, 1992, Virginia Big-eared Bat and Ozark Big-eared Bat. *Endangered and Threatened Species of the Southeastern United States (The Red Book)* FWS Region 4, Asheville, NC: U.S. Fish and Wildlife Service. http://endangered.fws.gov/i/a/saa7r-.html

Melton CD, 1999, Bats and Hummingbird Feeders. *Sierra Vista Herald/Bisbee Daily Review*. Sunday, September 5,1999. http://ag.arizona.edu/cochise/mg/bats.htm

Noel D, 2000, *Mexican Long-tongued Bat*. Austin, TX: Texas Parks and Wildlife. http://www.tpwd.state.tx.us/nature/wild/mammals/bats/species/mex_long.htm

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populations." Noel (2000) describes the use of agave by the Mexican long-tongued bat and notes that the loss of food resources is one of the major long-term threats to the species. Melton (1999) in an article for the Cochise County Cooperative Extension notes the following:

> "Also the reduced populations of desert plants in southeastern Arizona due to development may be negatively affecting the species [both nectar feeding species]. Bat populations are also threatened by loss of suitable mine and cave roosting habitat and disturbance to maternity roosts."

[4] *Id.*

[5] Feral cats are known to have had significant impacts at a variety of bat roosts in the US and abroad. The USFWS (1992) lists predation by feral cats as one of the possible factors for the decline of the Ozark and Virginia big-eared bat. Feral cats have had similar impacts on other bat species (especially at caves with small openings or gates). Barbour and Davis (1969) list feral cats as predators of little brown bats.